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PALEONTOLOGY.—Postscript notes on the ostracode subfamily Brachycytherinae.

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The subfamily Brachycytherinae was erected by Puri (1954, p. 248) to include *Brachycythere* Alexander (1933, p. 204) and *Alatacythere* Murray and Hussey (1942, pp. 169–171). Murray and Hussey (op. cit.) designated *Cythercis* (*Pterygocythereis?*) *alexanderi* Howe and Law (1936, pp. 42, 43) as the type species of *Alatacythere*. Howe (1951, p. 538) proposed a new name, *ivani*, for the type species since it was found to be preoccupied by *Cythercis alexanderi* Morrow (1934, p. 203). *Alatacythere* as conceived by Murray and Hussey (op. cit.) consisted of two groups with radically different types of hinges. The first group, typified by *Cythereis alexanderi*, has a trachyleberid-type hinge; the second group, with species like *Cypridina alata* Bosquet (1847, p. 369), has a *Brachycythere*-type hinge. Since Murray and Hussey also included species with *Brachycythere*-type hingement under *Alatacythere*, Puri (1954, p. 248) placed this genus under Brachycytherinae. Because part of *Cypridina alata* Bosquet of Murray and Hussey was not conspecific with Bosquet's species, Hill (1954, p. 822) proposed a new specific name *Pterygocythere murrayi* for its reception. Further, Hill (op. cit., pp. 819–820) erected a new genus, *Pterygocythere*, with *P. murrayi* as its type species and included under it forms with a *Brachycythere*-type hinge formerly included in *Alatacythere*. The other group of species (with a trachyleberid hinge) originally included by Murray and Hussey under *Alatacythere*, are now included by Hill (1954) under *Pterygocythereis* Blake. This procedure, if followed, would make *Alatacythere* an invalid genus.

Taxonomically, *Alatacythere* is a valid genus, but its use should be restricted to only those species which show the hingement encountered in the type species, *A. ivani*. The hinge in the type species in the right valve consists of an anterior rounded tooth, a postjacent socket that connects with the posterior crenulate tooth through a deep furrow. This deep furrow is bound dorsally and ventrally by parallel flanges. *Pterygocythercis* on the other hand has both the anterior and the posterior elements of the hingement crenulate in the molt stages only; the adult never shows any crenulations of the teeth and the hingement basically is of *Trachyleberis*-type.

As a practical solution to this confused problem, two different subfamilies are provided to accommodate "winged" forms with *Brachycythere*-type hinge structure and "winged" genera with trachyleberid hinge. *Alatacythere* is redefined and restricted to species which have the same hingement as the type species.

SYSTEMATIC TREATMENT

Order OSTRACODA Latreille

Suborder PODOCOPA Sars

Family TRACHYLEBERIDAE Sylvester-Bradley

PTERYGOCYTHERINAE, Puri, n. subfam.

Type genus: *Pterygocythereis* Blake, 1933.

Carapace pellucid, fragile, broadly triangular, with prominent ventrolateral wings. Hingement essentially *Trachyleberis*-type, valve articulate by means of terminal teeth, sockets, grooves and flanges.

This subfamily comprises the following genera: *Pterygocythereis* Blake and *Alatacythere* Murray and Hussey.

Genus **Pterygocythereis** Blake, 1933

Fimbria Neviani, 1928, pp. 72, 86 (not *Fimbria* Rosso, 1826).

Type species: Cythereis jonesi Baird, 1850, p. 175, pl. 20, fig. 1.

Carapace pellucid, fragile, hyaline, subtriangular, alate, with two well-developed ventrolateral wings. Muscle scar pattern consists of a vertical row of four scars and a U-shaped scar in front of the vertical row. Hinge in the right valve with a smooth anterior tooth, a postjacent socket leading to a posterior smooth, triangular tooth through a straight groove. This groove is bound dorsally and ventrally with flanges. Hinge of the left valve complementary. In the molt stages both the anterior and the posterior elements of hingement are crenulate.

Range: Cretaceous to Recent.

Remarks: Fimbria Neviani, 1928, is an earlier name for this group, but it is preoccupied and not available. The sole species referred to *Fimbria* by Neviani (*Cythere fimbriata* Münster) is synonymous with *Cythereis jonesi* Baird, the type of *Pterygocythereis* (Lienenklaus, 1894, p. 216; Key, 1955, p. 129).

Genus **Alatacythere** Murray and Hussey, 1942 (emended)

Type species: Cythereis (*Pterygocythereis?*) *alexanderi* Howe and Law, 1936, pp. 42, 43, pl. 4, fig. 23; pl. 5, fig. 5, (not *Cythereis alexanderi* Morrow, 1934, p. 203, pl. 31, figs. 14a–c) = *Alatacythere ivani* Howe (1951, p. 538) n. name.

Carapace pellucid, fragile, subtriangular, alate with well-developed ventrolateral wings. Muscle scar pattern in the type species consists of a group of three scars above a vertical row of four scars; in front of the ventral scar there is another scar. Hinge in the right valve with an anterior, large, rounded tooth, a postjacent socket connecting with the posterior large crenulate tooth through a straight groove. This groove is bound both dorsally and ventrally by flanges that parallel the grove

Range: Oligocene.

Family CYTHERIDAE Baird, 1850

Subfamily BRACHYCYTHERINAE Puri, 1954 (emended)

Type genus: *Brachycythere* Alexander, 1933, p. 204.

Carapace subquadrate to subovate, surface smooth, pitted or reticulate, inflated ventrally with a well-developed ala or a ventrolateral wing. Hingement essentially crenulate, valves articulate by means of terminal crenulate teeth, sockets and median and/or dorsal and ventral crenulate grooves and dorsal and ventral and/or dorsal, median and ventral hinge-bars. Anterior elements of the hingement in intermediate genera are noncrenulate. Line of concrescence and inner margin coincide.

This subfamily includes the following genera: *Brachycythere* Alexander, *Pterygocythere* Hill, and *Diogmopteron* Hill.

Genus **Brachycythere** Alexander, 1933

Type species: Cythere sphenoides Reuss, 1854, p. 141, pl. 26, fig. 2.

Carapace large, subquadrate to subovate; valves inequal (left larger than right). Anterior end broadly and obliquely rounded; posterior end narrower than the anterior and compressed. Both dorsal and ventral margins arched. Surface of the carapace smooth, pitted or reticulate. Carapace inflated with a well-developed ala. Hinge in the right valve with an anterior crenulate tooth, a postjacent socket leading to the posterior crenulate tooth, through a groove. This groove is bound dorsally and ventrally by hinge-bars. Hinge of left valve complementary. Muscle scar pattern consists of a vertical row of four scars; in front of this vertical row is another vertical row of two scars; the upper one is heart-shaped; anterior to the second vertical row, there is another heart-shaped scar. Marginal areas are broad, radial pore canals are numerous, and closely spaced with a tendency to branch in the

anteroventral region. Line of concrescence and the inner margin coincide.

Range: Cretaceous to Recent.

Genus **Pterygocythere** Hill, 1954

Type species: Cypridina alata Bosquet, 1847, p. 369, pl. 4, figs. 1a–d.

Carapace large, subquadrate to subovate. Anterior end compressed, broadly and obliquely rounded; posterior end compressed and narrower than the anterior. Dorsal margin arched; ventral margin nearly straight. Surface of the carapace smooth or spinose, carapace alate, with well-developed ventrolateral wing. Hinge in the right valve with a crenulate anterior tooth, a postjacent socket leading to the large, elongate, crenulate, posterior tooth through a groove. This groove is bound both dorsally and ventrally by hinge-bars. Hinge of the left valve complementary. Marginal areas are broad, radial pore canals numerous, irregular, closely spaced. Line of concrescence and inner margin coincide.

Range: Upper Cretaceous to Oligocene.

Remarks: This genus can be easily distinguished from *Brachycythere* by its ventrolateral wing. It could be separated from *Pterygocythereis*, which it resembles externally, by its *Brachycythere*-type hinge. *Pterygocythereis* has a characteristic *Trachyleberis*-type hinge.

Genus **Diogmopteron** Hill, 1954

Type species: Brachycythere lünenensis Triebel, 1941, pp. 383–385, pl. 8, figs. 77–80.

Carapace small to medium, subquadrate. Anterior end broadly and obliquely round, posterior end narrower and compressed. Dorsal margin nearly straight; dorsal and ventral margins converge posteriorly. Surface of the carapace smooth or spinose. Carapace alate, with a well-developed ventrolateral wing. Hinge in the right valve with a smooth anterior tooth, a postjacent socket leading toward the posterior crenulate tooth through a groove. Both dorsally and ventrally this groove is bound by hinge-bars. Above the dorsal hinge-bar, there is another groove which roughly parallels the dorsal hinge-bar and is bounded dorsally by another hinge-bar. Line of concrescence and inner margin coincide. Muscle scar pattern consists of four scars arranged in the shape of an inverted "L".

Range: Upper Cretaceous.

Remarks: This monotypic genus is fundamentally a *Brachycythere* except for having two grooves (dorsal and ventral) and three hinge-bars (dorsal, median and ventral). *Brachycythere* exhibits only one such groove and two hinge-bars.

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